

KS3 Unit 18 Fractions

Topic/Skill	Definition/Tips	Example
1. Fraction	A mathematical expression representing the division of one integer by another. Fractions are written as two numbers separated by a horizontal line.	$\frac{2}{7}$ is a 'proper' fraction. $\frac{9}{4}$ is an 'improper' or 'top-heavy' fraction.
2. Numerator	The top number of a fraction.	In the fraction $\frac{3}{5}$, 3 is the numerator.
3. Denominator	The bottom number of a fraction.	In the fraction $\frac{3}{5}$, 5 is the denominator.
4. Unit Fraction	A fraction where the numerator is one and the denominator is a positive integer.	$\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$ etc. are examples of unit fractions.
5. Reciprocal	The reciprocal of a number is 1 divided by the number. The reciprocal of x is $\frac{1}{x}$ When we multiply a number by its reciprocal we get 1. This is called the 'multiplicative inverse'.	The reciprocal of 5 is $\frac{1}{5}$ The reciprocal of $\frac{2}{3}$ is $\frac{3}{2}$, because $\frac{2}{3} \times \frac{3}{2} = 1$
6. Mixed Number	A number formed of both an integer part and a fraction part.	$3\frac{2}{5}$ is an example of a mixed number.
7. Simplifying Fractions	Divide the numerator and denominator by the highest common factor.	$\frac{20}{45} = \frac{4}{9}$
8. Equivalent Fractions	Fractions which represent the same value.	$\frac{2}{5} = \frac{4}{10} = \frac{20}{50} = \frac{60}{150} \text{ etc.}$
9. Comparing Fractions	To compare fractions, they each need to be rewritten so that they have a common denominator. Ascending means smallest to biggest. Descending means biggest to smallest.	Put in to ascending order : $\frac{3}{4}, \frac{2}{3}, \frac{5}{6}, \frac{1}{2}$. Equivalent: $\frac{9}{12}, \frac{8}{12}, \frac{10}{12}, \frac{6}{12}$ Correct order: $\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{5}{6}$
10. Fraction of an Amount	Divide by the bottom , times by the top	Find $\frac{2}{5}$ of £60 $60 \div 5 = 12$ $12 \times 2 = 24$
11. Adding or Subtracting Fractions	Find the LCM of the denominators to find a common denominator. Use equivalent fractions to change each fraction to the common denominator.	$\frac{2}{3} + \frac{4}{5}$ Multiples of 3: 3, 6, 9, 12, 15.. Multiples of 5: 5, 10, 15.. LCM of 3 and 5 = 15

	Then just add or subtract the numerators and keep the denominator the same.	$\frac{2}{3} = \frac{10}{15}$ $\frac{4}{5} = \frac{12}{15}$ $\frac{10}{15} + \frac{12}{15} = \frac{22}{15} = 1\frac{7}{15}$
12. Multiplying Fractions	Multiply the numerators together and multiply the denominators together.	$\frac{3}{8} \times \frac{2}{9} = \frac{6}{72} = \frac{1}{12}$
13. Dividing Fractions	<p>‘Keep it, Flip it, Change it – KFC’ Keep the first fraction the same Flip the second fraction upside down Change the divide to a multiply</p> <p>Multiply by the reciprocal of the second fraction.</p>	$\frac{3}{4} \div \frac{5}{6} = \frac{3}{4} \times \frac{6}{5} = \frac{18}{20} = \frac{9}{10}$